HOFA PLUGINS

HOFA CD-Burn & DDP

HOFA CD-Burn & DDP
File
Settings
Pause detection
Projekt: D:\Manual-Project.hofacd
Move Track Index CD time Duration Track Title Album Title Track Artist ISRC Album Artist Album Genre
1 Start 00:00.000 03:47.640 Track 1 HOFA DE0000000001 HOFA Pop Text
2 Pregap 03:47.644 00:01.672
2 Start 03:49.308 03:28.200 Track 2 HOFA DE0000000002 HOFA Pop Text
3 Pregap 07:17.504 00:01.672
3 Start 07:19.168 03:39.933 Track 3 HOFA DE0000000003 HOFA Pop Text
4 Pregap 10:59.112 00:01.672
4 Start 11:00.770 02:56.613 Track 4 HOFA DE0000000004 HOFA Pop Text
5 Pregap 13:57.392 00:01.672
5 Start 13:59.056 03:04.266 Track 5 HOFA DE0000000005 HOFA Pop Text
6 Pregap 17:03.322 00:01.672
6 Start 17:04.980 03:08.133 Track 6 HOFA DE0000000006 HOFA Pop Text
Add track start
Set track end
Add subindex
TRACK REMAIN 5 00:17.000
CD TIME REMAIN 14:16.054
Burn CD
Write DDP
+0.0 dB
13:20 13:30 13:40 13:50 14:00 14:10 14:20
05
03_referenzmix_mike_terrana_detonator.wav
-2.1 dB
HOFA CD-Burn & DDP (Standalone)

User Manual

HOFA CD-Burn & DDP (Plugin & Standalone)

V1.6.7

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Introduction

HOFA CD-Burn & DDP is a software for simple creation of an Audio-CD premaster as a burned CD or as DDP image. There are two versions: The standalone version which allows graphical editing of your audio material and the plugin version that you can use to create a CD premaster directly in your preferred DAW.

Note about MacAppStore: If you have purchased the application from the MacAppStore, you are using the standalone version. Because of technical reasons, the delivery of plugins is not possible in the MacAppStore. As the installation is done by the MacAppStore, you can skip the next chapters about installation and activation.

Installation

To install HOFA CD-Burn & DDP you will need the HOFA-Plugins Manager which you can download here:

http://hofa-plugins.de/pages/start_en/downloads_en.php

The HOFA-Plugins Manager also allows install all further products by HOFA Plugins which you can test for 14 days if you are interested.

Select "Install" in the field "HOFA CD-Burn & DDP Plugin" or "HOFA CD-Burn & DDP Standalone".

If you are installing the plugin version, you will need to select the plugin formats that you want at the top of the window. The plugin is currently available in VST, VST3, AU (Mac only), RTAS and AAX format.

By clicking "Apply Changes", the latest version of the software will be downloaded and installed to your computer.

If you have not yet bought the product, you can test it for 14 days. Click on "Start Demo" to start that 14-day period.

Please use the demo period before buying to make sure if CD-Burn & DDP is compatible with your CD writer.

Important note for **Windows XP and Vista** users:

To use HOFA CD-Burn & DDP with Windows XP or Vista, a Microsoft update needs to be installed which is not installed automatically by Windows. The update can be downloaded here:

http://www.microsoft.com/downloads/details.aspx?FamilyID=63ab51ea-99c9-45c0-980a-c556746fcf05&displaylang=en&displaylang=en

Activation

The activation of the plugin or standalone is done with the HOFA-Plugins Manager, which is also used for the installation.

A detailed description of the activation and deactivation process is available here.

Limitations of the evaluation version

During the 14 days of evaluation time, you can test the standalone version or the plugin as you like. As the only limitation, exporting DDP images is not possible.

Quick Start

For anyone who does not like to read manuals, here is a quick start guide how to create a CD-A premaster with HOFA CD-Burn & DDP

Plugin version

- Insert HOFA CD-Burn & DDP as the last plugin in the master channel of your DAW
- Create a new CD project
- Export (bounce) a mixdown of your audio beginning at DAW time position 00:00
- Tell the plugin where it can find the exported file
- Watch the plugin creating track markers automatically
- Check if all markers are at the right place and correct them if necessary
- Enter UPC/EAN and ISRC codes (optional)
- Enter CD-Text information (optional)
- Burn the CD or export a DDP

Standalone version

- Start HOFA CD-Burn & DDP
- Create a new CD project
- Drag and drop audio files into the editor window
- Move, cut, normalize or fade the clips as needed
- Check if all track markers are at the right place and correct them if necessary
- Enter UPC/EAN and ISRC codes (optional)
- Enter CD-Text information (optional)
- Burn the CD or export a DDP

Red Book Audio CD

Let's start with some words about the Audio CD format (CD-A). The CD-A is specified in the so called red book. HOFA CD-Burn & DDP can only create CDs and DDPs that meet the requirements of this standard.

A CD-A can contain max. 79 minutes and 48 seconds[1] of audio, which can be separated into up to 99 tracks. The minimum length of a track is 4 seconds. In most cases there are silent pauses between the tracks. It is also possible to have a track change without a pause. The pause between two tracks is called pregap. It can contain absolute silence but it can also be filled with audio. A CD player normally displays a negative time during the pregap which runs down to zero.

Furthermore there are subindex markers which can be used to mark a certain position inside the track. These markers are not supported by all CD players. In most cases they can only be displayed but it is not possible to jump to a subindex directly.

Audio data is always stored with a sample rate of 44,1 kHz with 16 bit. On the CD they are grouped in blocks of 588 samples, so called frames. One frame equals to a playing time of 1/75 second.

The markers for track start, track end and subindex are always related to a frame. So the minimum distance between two markers is 1 frame = 1/75 second.

HOFA CD-Burn & DDP always checks all the distances required by the red book while editing.

With CD-Burn & DDP it is also possible to create CDs up to 99 minutes. To write these, special high capacity blank CDs are necessary and your CD writer has to support this feature. Please ask your pressing plant, which maximum length they allow. Generally it can not be guaranteed that CDs with these lengths can be played back with every CD player.

1 In fact the red book does not define a maximum playing time but a track distance with tolerances. The first CDs had a maximum playing time of 74 minutes. Meanwhile the production tolerances could be reduced, so that longer times became possible. Most CD pressing plants allow a playing time of up to 79:48. CDs of 90 or even 99 minutes are beyond the restrictions of the red book standard.

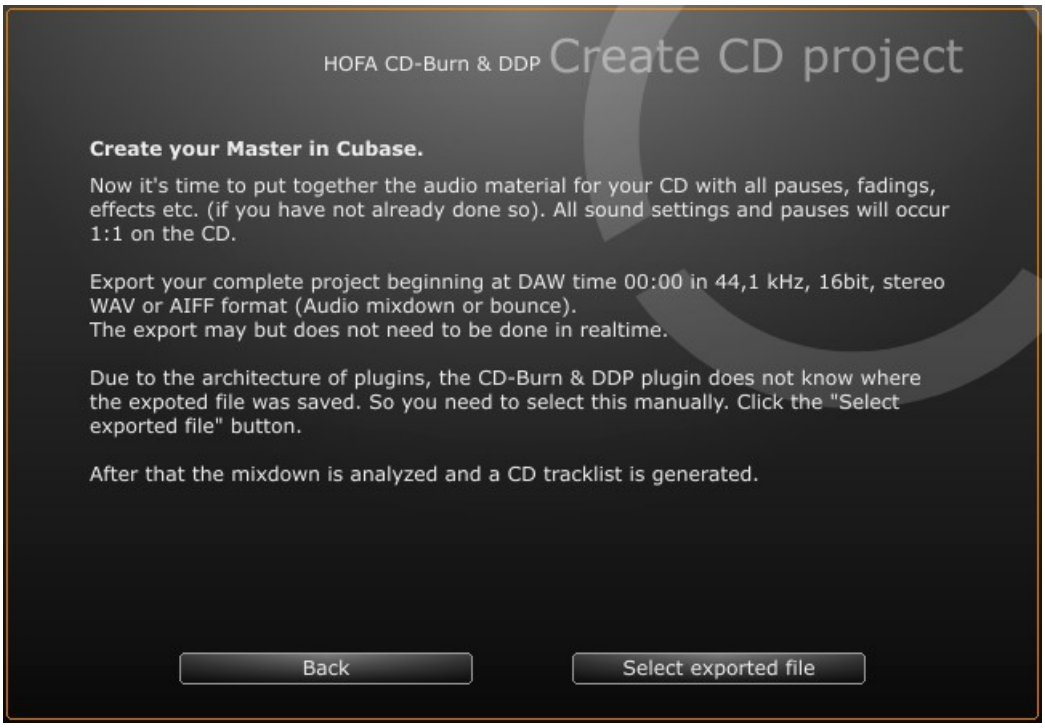
Plugin version

The plugin should always be inserted as the last plugin in the master channel of your DAW.

After inserting the plugin you will be asked to create a new CD project or open an existing one.

In both cases a file dialog will allow you to select a project file (extension .hofacd).

After creating a new project, you will see the following dialog:


HOFA CD-Burn & DDP
Create CD project
Create your Master in Cubase.
Now it's time to put together the audio material for your CD with all pauses, fadings, effects etc. (if you have not already done so). All sound settings and pauses will occur 1:1 on the CD.
Export your complete project beginning at DAW time 00:00 in 44,1 kHz, 16bit, stereo WAV or AIFF format (Audio mixdown or bounce).
The export may but does not need to be done in realtime.
Due to the architecture of plugins, the CD-Burn & DDP plugin does not know where the expoted file was saved. So you need to select this manually. Click the "Select exported file" button.
After that the mixdown is analyzed and a CD tracklist is generated.
Back
Select exported file

Now it's time to put together the audio material for your CD with all pauses, fadings, effects etc. (if you have not already done so). All sound settings and pauses will occur 1:1 on the CD.

A click on "Next" will lead to the next dialog:

The audio now needs to be exported from the DAW so the plugin can use it. Depending on your DAW the appropriate function is called something like "mixdown" or "bounce". Please check the documentation of your DAW.

VERY IMPORTANT:

The export always has to **start at DAW time 00:00**, because otherwise the time used in the plugin can not be synchronized to the DAW anymore!

The export has to be done in **44.1 kHz, 16 bit, stereo (or mono) *.WAV or *.AIFF format**, as this is the format needed for a CD-A. When using a mono file, the same signal will be used for both channels (left and right) on the CD

If the DAW project runs on a different sample rate (44.1 / 48 / 88.2 / 96 / 176.4 / 192 / 352.8 / 384 kHz) or a different bitrate, all conversions necessary will have to be done by the DAW. They are not a job of this plugin. The plugin will leave all audio data untouched.

Due to the architecture of plugins, CD-Burn & DDP does not know where the exported file was saved. So you need to select this manually. To do this click on "Choose file"

After that the pause detection will be started and a CD track list is being generated.

The plugin will search for silence. If a pause with silence is found, a track start and a track end marker will be inserted into the track list.

Silence is a region, where the signal is below a predefined threshold level for a certain time. If you do not like the result of the automatic pause detection, you can adjust the threshold level in the menu via Settings->Pause detection.

In the submenu Marker distances you can define, which distances the markers should have from start and end of the pauses.

After the pause detection has finished, the new track list will be visible in the main window.

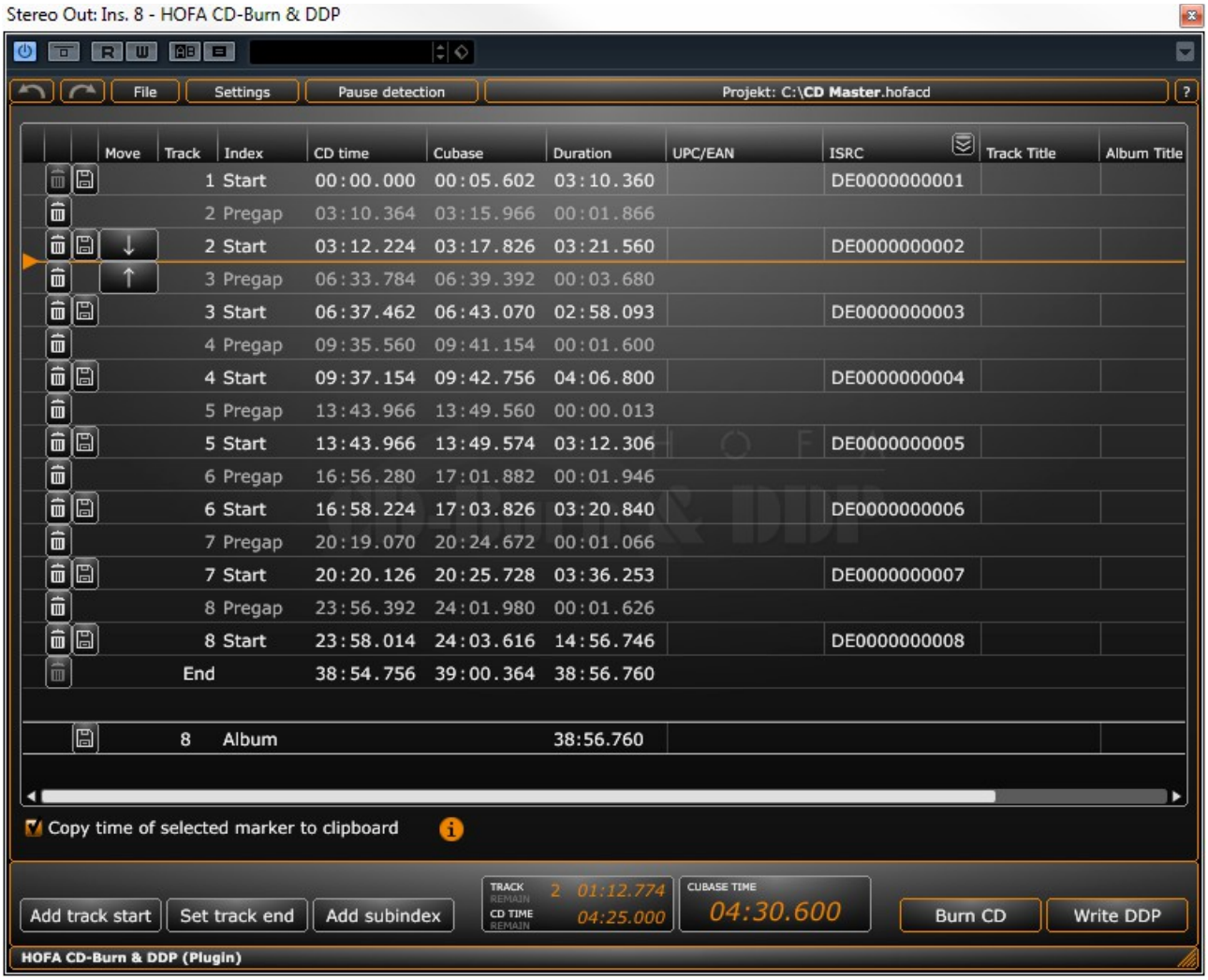
VERY IMPORTANT:

From this moment on the **plugin will not pass through the audio of the DAW** anymore! Instead the **exported mixdown will be played back**. Further changes in the DAW project will not be hearable and will not be available on the CD.

Note for users of Logic:

It is possible, that you will need to activate Input-Monitoring in Logic, because otherwise the time display in the plugin may not work correctly.

The track list



In this example 8 tracks have been created. So in total the list contains 16 markers. Additionally in the bottom line you can see the total number of tracks and the total playing time of the CD.

In the track list as well as in the control panel there are two different time displays: CD time and Host time. These times are not the same due to the fact that the pause detection also looks for silence in the beginning and defines the CD start where the first silence ends. This means, that on the CD the silence in the beginning will be removed except for the time which is defined under Settings->Marker distances->before first track.

The time display format can be selected in the settings menu. You can choose between CD frames (marked by an "f" in the end) or milliseconds.

The track list contains the following columns:

- Current position: The orange arrow on the left will show you the current

playback position of your DAW.

- Delete: The buttons are used to delete a marker from the list. In some cases the neighbor markers will also be deleted, e.g. when deleting a track start the pregap of that track is also deleted.

  As it would make no sense, start and end of the CD can not be deleted.

- Save track as audio file: Using the buttons you can save single tracks as audio files. Using this button in the bottom line, all tracks will be saved. For further information see chapter Settings.

- Move: Using the arrow buttons and a marker can be moved to the current playback position of your DAW. If the red book standard does not allow this position for the marker, the button will be disabled. While moving the mouse over the button, a tooltip will be shown that informs you about the reason for deactivating.

- Track: The track number.

- Index: The type of the marker (Start, Pregap, Index 2, 3...). The numeration of subindices will start at 2, because a CD player will display the normal track start as subindex 1.

- CD-Time: The time position of the marker on the CD.

  You can edit this position directly in the list. This is done using the mouse wheel, clicking and moving the mouse vertically or by direct number input after a double click. This will only modify the position of this marker. All other markers remain untouched. Please note, that you can only move a marker up to its next neighbor marker. This ensures, that the list will stay red book compatible.

- Host: The time position of the marker related to your DAW.

  This value can also be edited in the list directly with the restrictions mentioned above. Instead of "Host" you will normally see the name of your DAW.

- Duration: The duration of a track or a pregap.

  This column is for information only and can not be edited.

All entries of all further columns can only be entered in the lines of a track start marker (for that track) and in the last line (for the whole CD).

- UPC/EAN: The UPC or EAN can be entered in any line. It is always valid for the whole CD.

- ISRC: The ISRC for this track. Pressing the button, an automatic numeration will be done starting with the ISRC of track 1.

- Track/Album Title: The CD-Text entry "Title" for this Track or for the

whole CD.

- Track/Album Artist: The CD-Text entry "Artist" ("Performer") for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Songwriter: The CD-Text entry "Songwriter" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Composer: The CD-Text entry "Composer" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Arranger: The CD-Text entry "Arranger" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Message: The CD-Text entry "Message" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Genre: The CD-Text entry „Genre" can be entered in any line. It is always valid for the whole CD.
- Move Text: Die Button ↓ Text ↑ has got a double function and is used to move CD-Text und ISRC information in the list without modifying the marker positions. This can be very helpful if e.g. the title assignment was done wrong or if the number of tracks becomes different after a repeated pause detection.

  The down arrow moves down CD-Text and ISRC info of this and all following tracks. Information that exceeds the end of the list is automatically re-inserted when another track is added to the end or when the information is moved up again.

  The up arrow moves up CD-Text and ISRC info of all following tracks. The info in the current row will be deleted!

In the beginning all columns are visible. You can activate and deactivate them with a right-click on the list header. The display order of the columns can be adjusted by moving them with the mouse. Information in deactivated columns is not written to CD and DDP!

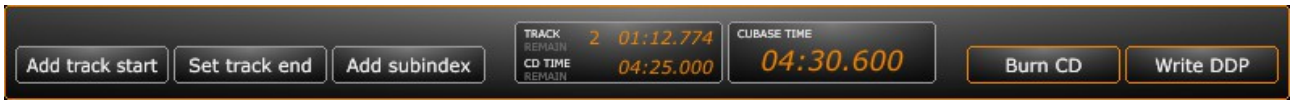
Copy time of selected marker to clipboard

If this function is activated, the Host time of the selected marker is permanently copied to the clipboard. This makes it easier to set the current playback position to this position in the DAW. This function is not available for

Pro Tools (RTAS/AAX) and Logic (AU), because with these DAWs pasting a time string from the clipboard is not possible.

The control panel

The control panel is used for editing the track list and for starting the CD burn and DDP export process.



In the track list as well as in the control panel there are two different time displays: CD time and Host time. These times are not the same due to the fact that the pause detection also looks for silence in the beginning and defines the CD start where the first silence ends. This means, that on the CD the silence in the beginning will be removed except for the time which is defined under Settings->Marker distances->before first track.

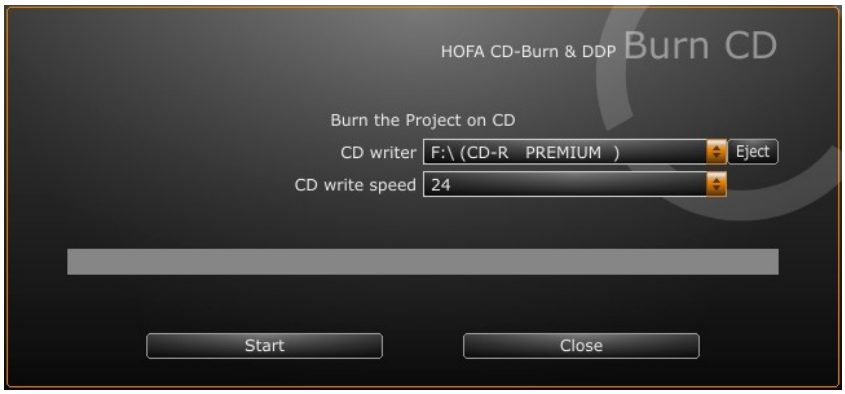
The time displays in the control panel show the current playback position of your DAW. You can click on the CD time displays to toggle between current time and remaining time. Differences between the Host time displayed here (in milliseconds) and in your DAW can occur due to internal rounding to CD frames.

With the buttons at the left you can insert a track start, track end or subindex marker at the current playback position of your DAW. These buttons are also disabled, if the red book would not allow this. Again a tooltip while moving the mouse over the button will explain the reason for this.

For an objective judgment of level, loudness and stereo width the standalone version of HOFA CD-Burn & DDP comes with a peak meter, an EBU-mode loudness meter and a correlation meter. This is not integrated into the plugin version, because they are also available separately as free plugins („HOFA 4U Meter, Fader & MS-Pan" and "HOFA 4U Goniometer & Korrelator").

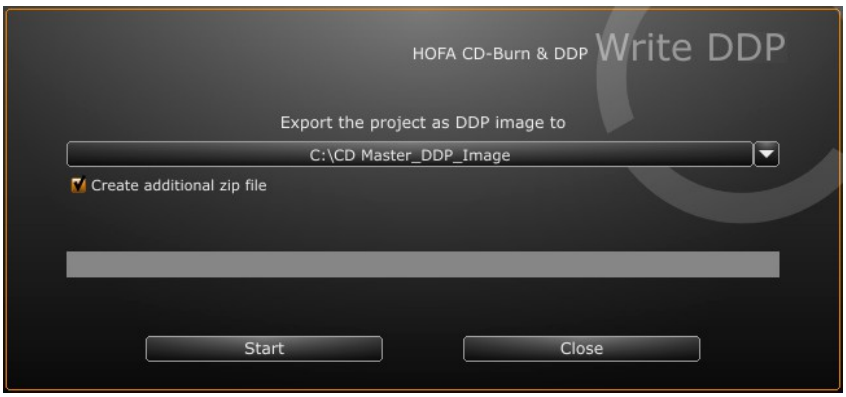
Burn CD

To start burning the CD there is the following dialog window:



In the select box "CD writer" you can select the device, that should be used for burning the CD (if there is more than one in your computer). The CD write speed is not selectable until an empty CD has been put into that device. Click "Start" to start the burning process.

Write DDP



A DDP image is not a file but a folder (see also chapter DDP). As destination folder the project path extended by "_DDP_IMAGE" is proposed, but you can select any folder you like. This folder should be empty. If a DDP image already exists in that folder, you will be asked if, you want to overwrite that image.

If „Create additional zip file" is activated, the complete DDP image is additionally saved as a packed zip file with the same name.

The toolbar

The toolbar at the top contains the following functions:

Undo/Redo

With the buttons and you can undo and redo any editing step.

File

Here you can create, open and save projects and import DDP images and .cue files. Furthermore you can save the current track list as a text file.

Settings

In the Settings menu you can find all basic settings used by the plugin.

- Marker distances: Here you define the distances between the created markers and the start and end of silence during pause detection.
- Pause detection: A signal below the threshold level is interpreted as silence. This is adjustable from -96 dB (no signal) up to -40 dB.

  With "Run pause detection" you can create a new track list. See chapter Pause detection for details.
- Maximum CD time: The standard maximum playing time fo a CD is 79:48. With CD-Burn & DDP it is also possible to create CDs up to 99 minutes. To write these, special high capycity blank CDs are necessary and your CD writer has to support this feature. Please ask your pressing plant, which maximum length they allow. Generally it can not be guaranteed that CDs with these lengths can be played back with every CD player.
- Allow “Hidden Track”: In this mode, the pregap before track 1 becomes visible. The track 1 start position can now be freely moved to create a "Hidden Track" in that pregap. See chapter Hidden Track for details.
- Time display: You can choose between CD frames (marked by an "f" in the end) or milliseconds.

  As CD marker positions are always set to frames (1/75 second) , the display in milliseconds may have rounding errors.
- Track export settings: This will open a dialog window with the following settings for saving tracks:
  - Audio file format: The possible formats are: Wave, Aiff, FLAC, Ogg-

Vorbis and LAME MP3. Concerning the creation of MP3 files, please note chapter LAME MP3.

- Quality: For the compressed formats FLAC, Ogg-Vorbis and LAME MP3 different quality choices are available. Higher quality always has the disadvantage of bigger file size.
- Write CD-Text information to ID3 tags: When creating MP3 files, the existing CD-Text information can be integrated in the file as ID3 tags. The CD-Text entries Songwriter, Arranger and Message are not used, because ID3 tags do not have these entries.
- Use xxx for file names: If CD-Text information is available, it can be used to create the file names.
- Create Subfolder from project name: The name of the project is used to create a subfolder where the files will be saved.
- Include pregap of track in audio file: If this is selected, the pregap of the track (if existing) is included in the audio file.
- Include pregap of following track in audio file: If this is selected, the pregap of the following track (if existing) is included in the audio file. This can be useful e.g. for live recordings, where the applause is put to the pregap of the following track.
- Write ISRC to Wave file: An extension of the broadcast wave format allows writing the ISRC into a .wav file.
- Show this window every time when saving a track: If this is selected, this settings window is opened each time you want to save a track.

- File name for MD5 file: When creating the DDP image, an MD5 checksum file is created. You can select here which filename this file should have.
- Show Tooltips: If the tooltips should bother you, you can disable them here.
- Language: English or German.
- Reset to default settings: Resets all settings to default values.

Pause detection

This will start the automatic pause detection which was already used when the project was created.

With this function all CD track markers will be deleted first. After that the audio is being analysed and a new track list is generated. This function will look for silence. If a pause with silence is found, a track start and a track end marker will be inserted into the track list.

Silence is a region, where the signal is below a predefined threshold level for a

certain time.

First a dialog is opened that allow you to adjust that threshold level (You can find the same value in the settings menu under pause detection). If "Keep CD-Text information, ISRC and UPC/EAN codes" is checked, the available information is inserted in the new list again. As the number of tracks may change during pause detection, you should check if all titles are still correctly associated. If necessary you can use the

buttons to correct this again.

If you do not like the result of the automatic pause detection, you should run it again using a different threshold level. A higher threshold normally leads to a higher number of tracks, as also louder parts can be interpreted as pauses.

In the settings submenu Marker distances you can define, which distances the markers should have from start and end of the pauses.

?

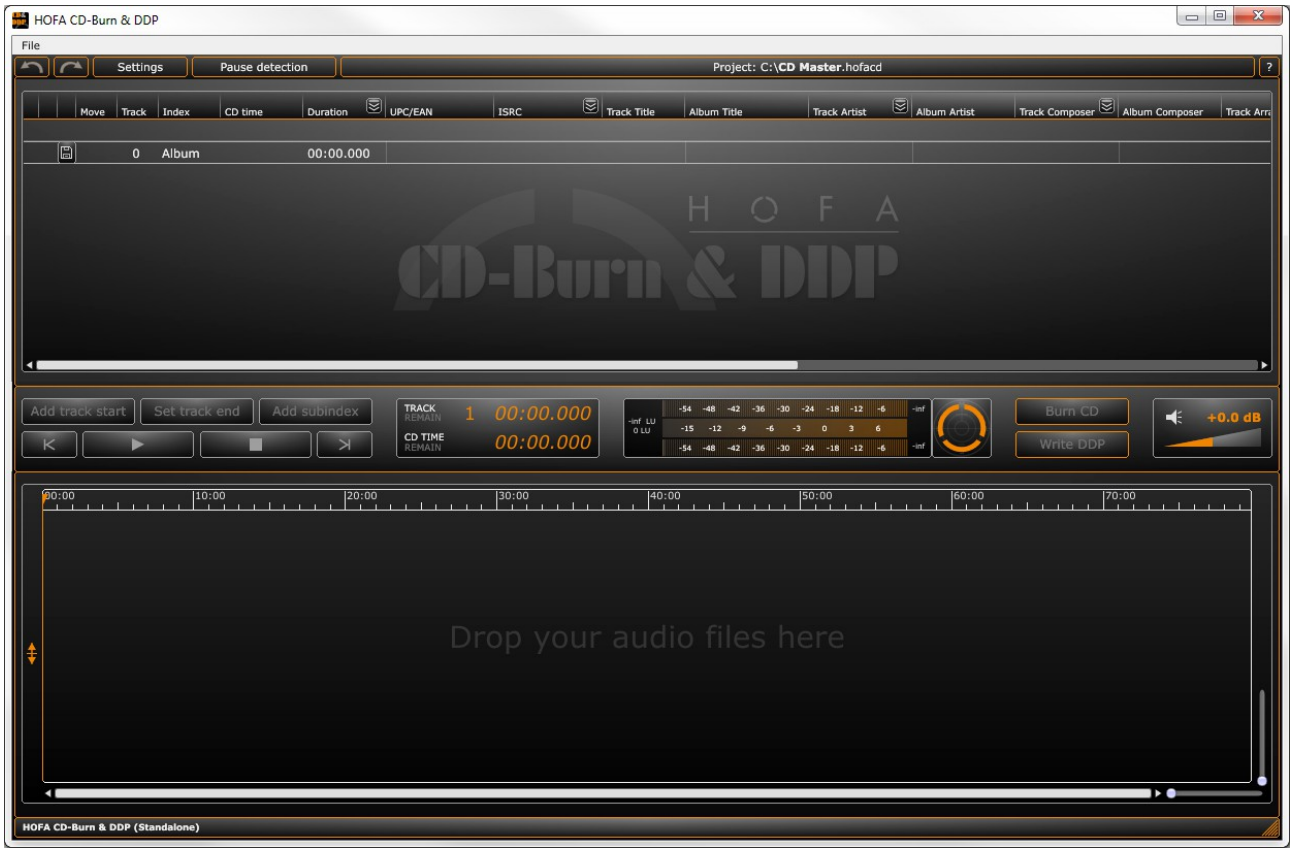
The button will open this manual.

Standalone version

After starting the application, you will first be asked, if you want to create a new CD project or open an existing one. In both cases a file select window will allow you to choose a project file with the extension .hofacd. Furthermore a DDP image can be imported directly. In this case a .hofacd project file is automatically created, using the name of the DDP folder.

At any time, project files or DDP folders can also be opened easily by drag & drop.

After creating a new project the empty project window becomes visible.



The project window consists of 3 parts. On top you can see the track list, which will show all track markers for the CD and is used to edit all additional information like CD-Text. Below that you can find the control panel. At the bottom there is the audio editor. The division between list and audio editor can be adjusted by moving up and down the control panel.

To fill the CD project, just drag and drop any audio file into the audio editor. Or you can choose "Import audio file" from the context menu.

Generally the file formats .wav, .aiff, .flac, .mp3, .ogg and .wma are supported. Due to quality reasons we strongly recommend to use only the uncompressed formats .wav, .aiff or .flac for the creation of a CD-A premaster.

As already mentioned the audio data for a CD needs to be available in 44.1 kHz, 16 bit stereo format. If the imported file should have a different sample rate, it will first be converted to 44.1 kHz. If the bit rate of the file is different, it remains unchanged, as a conversion to 16 bit is only done at the end after mixing (see also chapter Dither).

When importing a mono file, you can select, if you want to put it on the left, the right or both channels. If there are two mono files that belong together, you are also asked if you want to import them as a stereo pair. This is the case if they are in the same folder, have the same format and length and have the same filenames with a trailing “L” for the left and “R” for the right channel (e.g. “TrackL.wav” and “TrackR.wav”). As a stereo pair, they are handled like one stereo file in the audio editor.

Project folder

If „Use project folder“ is enabled in the Settings, all audio files used in a project are automatically copied to the project folder. This folder will have the name of the project extended by "_hofacd_files". Using this option makes it easier to move complete projects to different locations. Please note that when using the project folder, the project will always reference to the files in the project folder. Changes applied to the originally imported files will have no influence on the project.

Note about MacAppStore: If the application was purchased from the MacAppStore, the project folder is generally used. The option does not show up in the Settings.

The audio editor

Let's first have a look at the audio editor. Each imported file is represented as a waveform clip. If the audio file was dragged behind the end of the CD project, the clip is appended to the end with the distance defined in Settings->Default pause. A track start marker in front and a track end marker at the end of each clip are created. The distances of these markers can also be defined under Marker distances in the settings menu.

If the file is dropped before the end of the CD, the clip is placed exactly to that mouse position. In this case markers are only generated it no other clip is already there.

Using the mouse you can select one or several clips. When you hold the Alt key while clicking, all following clips are also selected.

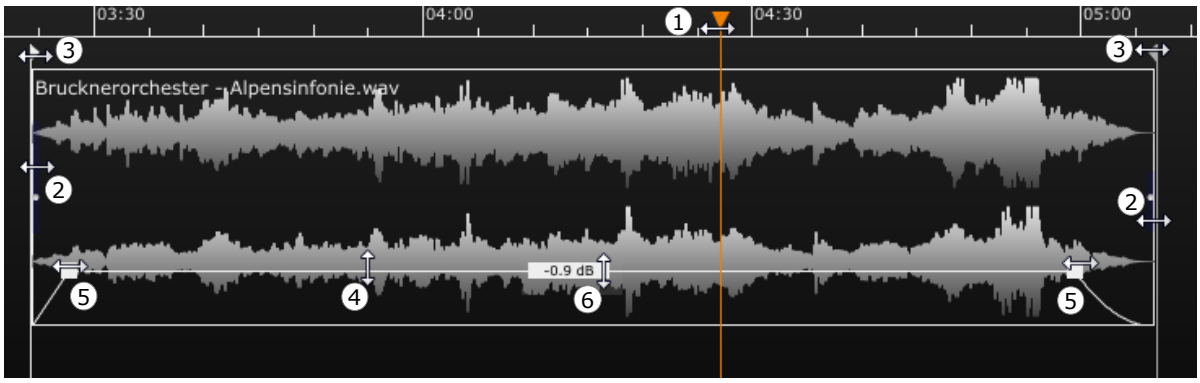
Selected clips can be moved on the time axis with the mouse until they hit the border of another clip. The default pause will also remain between them. By pressing the Ctrl (PC) or Cmd (Mac) key this blocking can be switched off.

When moving clips, all markers that are around or inside the clips are also moved. When pressing the shift key while moving clips, the markers are not moved.

Pressing the delete key, all selected clips and associated markers are removed. Again the markers remain unchanged when the shift key is also pressed.

If you move the clips so that they are overlapping, a cross fade will automatically be done between them. If they are on different tracks in the editor, they will be mixed without cross fade. The markers between the clips are removed in this situation as there is no definite position for the track change anymore. Of course you can add a track start marker manually if you want.

While moving the mouse over a clip, the shape of the mouse pointer will vary. This is associated with the following functions:



1. In the time bar you can set the orange marker for the current playback position. By moving the mouse up/down while the button is pressed or by using the mouse wheel, you can also zoom in/out here. A double click in the time bar will start playback.
2. At the borders the beginning and end of a clip can be adjusted. Markers that were generated automatically will be moved with the borders.
3. Here you can move a marker independent of the clip border. The movement is only possible up to the neighbor markers or as far as the red book will allow this.
4. The line is a level slider for the clip. A double click will reset the volume to the original value of the audio file.

5. By moving the square you can modify the fade in and out times. A right click changes the shape of the fading curve. Modifying the times of cross fades is not possible.
6. The level of the clip is displayed in dB here. A click on this label will mute/unmute the clip. After a double click you can enter the level in dB as a number.

A right click on a clip will open a context menu with the following functions:

- Cut: Splits up the clip at the current playback position (only if this position is inside the clip).
- Copy: Copies a clip to the clipboard.
- Delete clip and related markers: Removes a clip and all markers associated with it.
- Delete clip only: Removes a clip. All markers remain unchanged.
- Move to other track: Moves the clip to the upper or lower editor track.
- Normalize clip: Normalizes the clip, so that its peak will be at full scale.
- Reset level: Resets the clip level to the original value of the audio file.
- Replace audio file: Use a different audio file for the clip.
- Mute/Unmute: Mute/unmute clip.

A right click outside a clip will open a context menu with the following functions:

- Paste: Inserts the copied clip. If the mouse is before the current end of the CD, the clip will be inserted at the mouse position. If it is behind, the clip will be added to the end of the CD.
- Import audio file: Inserts a new clip to the project. If the mouse is before the current end of the CD, the clip will be inserted at the mouse position. If it is behind, the clip will be added to the end of the CD.
- Run pause detection: See chapter Pause detection.

The track list

The track list is a table containing all markers. Additionally in the bottom line you can see the total number of tracks and the total playing time of the CD.

The track list contains the following columns:

- Current position: The orange arrow on the left will show you the current position for playback and marker insertion.
- Delete: The buttons are used to delete a marker from the list. In some cases the neighbor markers will also be deleted, e.g. when deleting a track start the pregap of that track is also deleted.

  As it would make no sense, start and end of the CD can not be deleted.
- Save track as audio file: Using the buttons you can save single tracks as audio files. Using this button in the bottom line, all tracks will be saved. For further information see chapter Settings.
- Move: Using the arrow buttons and a marker can be moved to the current playback position. If the red book standard does not allow this position for the marker, the button will be disabled. While moving the mouse over the button, a tooltip will be shown, that informs you about the reason for deactivating.
- Track: The track number.
- Index: The type of the marker (Start, Pregap, Index 2, 3...). The numeration of subindices will start at 2, because a CD player will display the normal track start as subindex 1.
- CD-Time: The time position of the marker on the CD.

  You can edit this position directly in the list. This is done using the mouse wheel, clicking and moving the mouse vertically or by direct number input after a double click. This will only modify the position of this marker. All other markers and clips remain untouched. Please note, that you can only move a marker up to its next neighbor marker. This ensures, that the list will stay red book compatible.
- Duration: The duration of a track or a pregap.

  In all pregap marker rows, you can also edit the time. In this case, all following markers and clips are moved by the same amount. That means that the length of pregap pauses and therefore also the length of the CD is changed. Using the button, you can set all pregap pauses to the same length. Also here, all markers and clips are moved accordingly.

All entries of all further columns can only be entered in the lines of a track start marker (for that track) and in the last line (for the whole CD).

- UPC/EAN: The UPC or EAN can be entered in any line. It is always valid for the whole CD.
- ISRC: The ISRC for this track. Pressing the button, an automatic numeration will be done starting with the ISRC of track 1.

- Track/Album Title: The CD-Text entry "Title" for this track or for the whole CD.
- Track/Album Artist: The CD-Text entry "Artist" ("Performer") for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Songwriter: The CD-Text entry "Songwriter" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Composer: The CD-Text entry "Composer" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Arranger: The CD-Text entry "Arranger" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Track/Album Message: The CD-Text entry "Message" for this track or for the whole CD. Pressing the button, the entry for the CD or for track 1 is copied to all tracks.
- Genre: The CD-Text entry „Genre" can be entered in any line. It is always valid for the whole CD.
- Move Text: Die Button ↓ Text ↑ has got a double function and is used to move CD-Text und ISRC information in the list without modifying the marker positions. This can be very helpful if e.g. the title assignment was done wrong or if the number of tracks becomes different after a repeated pause detection.

  The down arrow moves down CD-Text and ISRC info of this and all following tracks. Information that exceeds the end of the list is automatically re-inserted when another track is added to the end or when the information is moved up again.

  The up arrow moves up CD-Text and ISRC info of all following tracks. The info in the current row will be deleted!

In the beginning all columns are visible. You can activate and deactivate them with a right-click on the list header. The display order of the columns can be adjusted by moving them with the mouse.

By clicking on a marker line the current playback position will be set to this marker.

Lines containing a track start marker can be moved to other track start lines. When doing this, the whole track including pregap, all index markers, clips and CD-Text information is placed to the new position inside the project. If it would be necessary to cut clips, this movement is not allowed.

The control panel

The control panel is used for controlling playback, editing the track list and for starting the CD burn and DDP export process.

Using the player controls, everything will be played back as it will be put on the CD including fades and cross fades. With the skip forward and back buttons you can jump to the next or previous marker in the list. So in contrast to a CD player you can not only jump to a track start, but also to track end and subindex markers.

The volume control is only used for playback. The volume on the CD will not be modified here.

The time display shows the current playback position of the track and the whole CD. You can click on the display to toggle between current time and remaining time. The time display format can be selected in the settings menu. You can choose between CD frames (marked by an "f" in the end) or milliseconds.

With the buttons above the player controls you can insert a track start, track end or subindex marker at the current playback position. This can also be done on the keyboard with the keys S, E and I for start, end and index. These buttons are also disabled, if the red book would not allow this. Again a tooltip while moving the mouse over the button will explain the reason for this.

For an objective judgment of level, loudness and stereo width the standalone version of HOFA CD-Burn & DDP comes with an inter-sample peak meter, an EBU-mode loudness meter and a correlation meter.

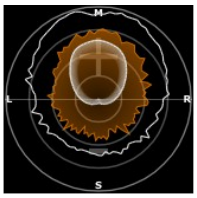
The peak meter always shows a range of -60 dBFS up to 0 dBFS. The maximum levels for left and right are shown above. The peak meter can also shows inter-sample peaks; see section Intersample peaks.

The EBU-mode loudness meter lies between the l/r peak meters. Loudness is only shown as one value (and not for left/right) according to EBU-mode specifications.

Furthermore loudness range is shown as square brackets inside the loudness meter.

More about EBU-mode and loudness range in section EBU R 128.

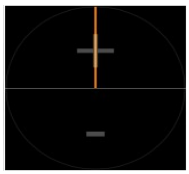
At the right of the meter you can find the goniometer/correlation display. You can switch between the views in the settings menu.



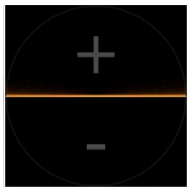
The goniometer shows three curves. Peak (orange region), Peak Hold (white line) and Energy (white line with gradient). Peak shows the current distribution, peak the maximum and energy the averaged distribution.

The display shows a logarithmic scale of 40 dB. The scale adjusts to the level to show low levels as well as high levels.

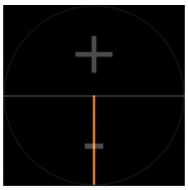
Correlation is shown as the opening angle of the to orange lines. A correlation of +1 (0°) corresponds to the lines closed in the upper half, -1(180°) closed in the lower half and 0 (90°) to horizontal lines.



Correlation +1/0°;
left and right are equal (but might have different levels)



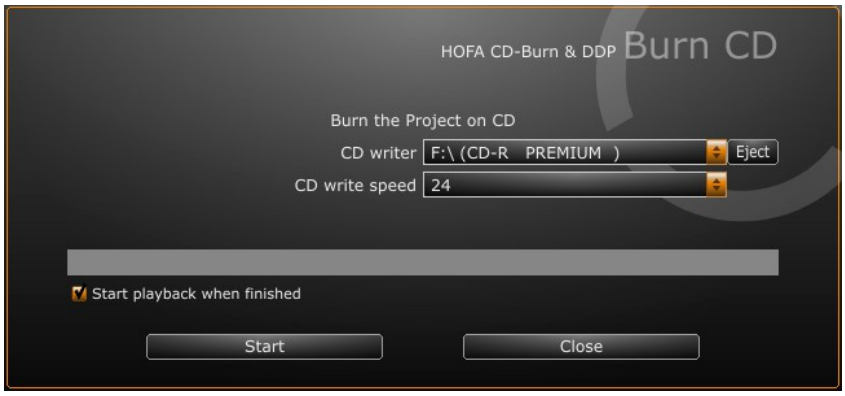
Correlation 0/90°;
left and right are independent



Correlation -1/180°;
left and right are equal but with different signs

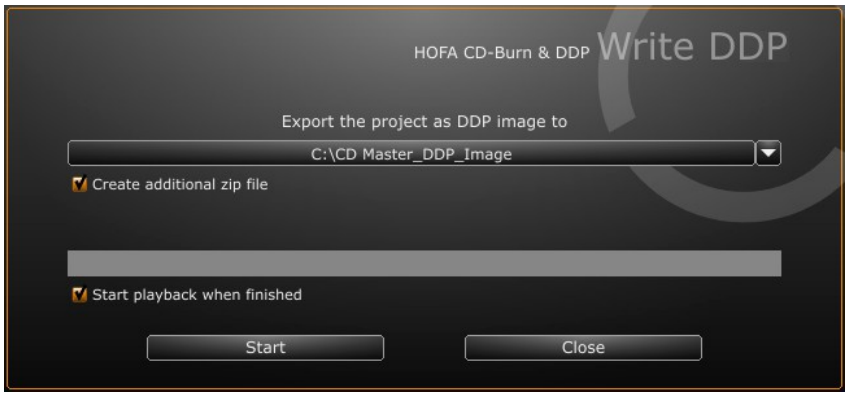
Burn CD

To start burning the CD there is the following dialog window:



In the select box "CD writer" you can select the device, that should be used for burning the CD (if there is more than one in your computer). The CD write speed is not selectable until an empty CD has been put into that device. Click "Start" to start the burning process. If the “Start playback when finished” option is activated, playback will start after a CD has been written. Please not that this will play back the project from your hard disk and not from the CD, as the CD will be thrown out.

Write DDP



A DDP image is not a file but a folder (see also chapter DDP). As destination folder the project path extended by "_DDP_IMAGE" is proposed, but you can select any folder you like. This folder should be empty. If a DDP image already exists in that folder, you will be asked, if you want to overwrite that image. If the “Start playback when finished” option is activated, playback will start after the process is finished.

File menu

Here you can create, open and save projects and import DDP images and .cue files. Furthermore you can save the current track list as a text file.

Note about MacAppStore: If the application was purchased from the MacAppStore, please note that due to the security system used by the MacAppStore, all .cue files that you want to import and the corresponding audio files have to be located inside the OS-X "Music" folder.

The toolbar

The toolbar at the top contains the following functions:

Undo/Redo

With the buttons and you can undo and redo any editing step.

Settings

In the Settings menu you can find all basic settings used by the application.

- Use project folder: Wenn diese Einstellung aktiviert ist, all audio files used in a project are automatically copied to the project folder. Fo details, see chapter Project Folder.
- Default Pause: This is the minimum distance between clips when importing or moving them.
- Marker distances: Here you define the distances, that the created markers should have to the beginning and the end of the imported clips. When using the function "Create CD track list" these are the distances between the markers and the start and end of silence during pause detection.
- Pause detection: A signal below the threshold level is interpreted as silence. This is adjustable from -96 dB (no signal) up to -40 dB.

  With "Run pause detection" you can create a new track list. See chapter Pause detection for details.
- Maximum CD time: The standard maximum playing time fo a CD is 79:48. With CD-Burn & DDP it is also possible to create CDs up to 99 minutes. To write these, special high capycity blank CDs are necessary and your CD writer has to support this feature. Please ask your pressing plant, which maximum length they allow. Generally it can not be

guaranteed that CDs with these lengths can be played back with every CD player.

- Allow "Hidden Track": In this mode, the pregap before track 1 becomes visible. The track 1 start position can now be freely moved to create a "Hidden Track" in that pregap. See chapter Hidden Track for details.
- Meter: A Submenu to control the settings of the meter:
  - Peak: Show true peak display.
  - Hold: Show peak hold. This is only visible if the peak display is shown.
  - EBU: Show loudness meter.
  - LRA: Show Loudness Range. This is only visible if loudness is shown.
  - EBU Mode: EBU mode setting. A more detailed description is available in the EBU R 128 section.
  - EBU Scale: Toggle EBU scale; selectable between relative (LU) and absolute (LUFS) and two different scalings.
  - Run Int. EBU & LRA: Enables EBU and LRA measurement.
  - Reset EBU & LRA: Reset EBU and LRA measurement.
  - Clear Hold: Clear hold. Alternatively you can click on the peak hold display.
  - Detect Intersample Peaks : Switch on/off the use of intersample peaks for the measurement. For details see section Intersample peaks.
- Korrelator/Goniometer: A Submenu to control the settings of the Korrelator/Goniometer:
  - Gonio Peak: Toggle Goniometer peak display and set colour.
  - Gonio Peak Hold: Toggle Goniometer peak hold display and set colour.
  - Gonio Energy: toggle Goniometer energy display and set colour.
  - Show Goniometer/Show Correlation: Toggle between Goniometer or Korrelator display.
- Time display: You can choose between CD frames (marked by an "f" in the end) or milliseconds.

  As CD marker positions are always set to frames (1/75 second) , the display in milliseconds may have rounding errors.
- Audio output device: Select the device, that should be used for playback.
- Track export settings: This will open a dialog window with the following settings for saving tracks:
  - Audio file format: The possible formats are: Wave, Aiff, FLAC, Ogg-Vorbis and LAME MP3. Concerning the creation of MP3 files, please

note chapter LAME MP3.

- Quality: For the compressed formats FLAC, Ogg-Vorbis and LAME MP3 different quality choices are available. Higher quality always has the disadvantage of bigger file size.
- Write CD-Text information to ID3 tags: When creating MP3 files, the existing CD-Text information can be integrated in the file as ID3 tags. The CD-Text entries Songwriter, Arranger and Message are not used, because ID3 tags do not have these entries.
- Use xxx for file names: If CD-Text information is available, it can be used to create the file names.
- Create Subfolder from project name: The name of the project is used to create a subfolder where the files will be saved.
- Include pregap of track in audio file: If this is selected, the pregap of the track (if existing) is included in the audio file.
- Include pregap of following track in audio file: If this is selected, the pregap of the following track (if existing) is included in the audio file. This can be useful e.g. for live recordings, where the applause is put to the pregap of the following track.
- Write ISRC to Wave file: An extension of the broadcast wave format allows writing the ISRC into a .wav file.
- Show this window every time when saving a track: If this is selected, this settings window is opened each time you want to save a track.

- File name for MD5 file: When creating the DDP image, an MD5 checksum file is created. You can select here which filename this file should have.
- Dither: These menu entries are explained below in chapter Dither.
- Show Tooltips: If the tooltips should bother you, you can disable them here.
- Language: English or German.
- CD-Text Language: CD-Text entries can be stored using different character encodings: ISO8859 for latin characters or Shift-JIS for Japanese. See chapter Special characters in CD-Text for details.
- Reset to default settings: Resets all settings to default values.

Pause detection

With this function all CD track markers will be deleted first. After that the audio is being analysed and a new track list is generated. This function will look for silence, so here the clip boundaries do not matter anymore. If a pause with silence is found, a track start and a track end marker will be inserted into the

track list.

Silence is a region, where the signal is below a predefined threshold level for a certain time.

First a dialog is opened that allow you to adjust that threshold level (You can find the same value in the settings menu under pause detection). If "Keep CD-Text information, ISRC and UPC/EAN codes" is checked, the available information is inserted in the new list again. As the number of tracks may change during pause detection, you should check if all titles are still correctly associated. If necessary you can use the

buttons to correct this again.

If you do not like the result of the automatic pause detection, you should run it again using a different threshold level. A higher threshold normally leads to a higher number of tracks, as also louder parts can be interpreted as pauses.

In the settings submenu Marker distances you can define, which distances the markers should have from start and end of the pauses.

?

The button will open this manual.

Keyboard shortcuts

Some functions can also be used with the computer keyboard:

Key	Function
Enter	Start playback
0 in number pad	Stop playback
Space	Start/Stop playback
Shift + Space	Start playback at the position, where it has been started the last time
Ctrl/Cmd* + z	Undo
S	Add Track Start marker
E	Add / move Track End marker
I	Add Index marker
1..9	Jump to start of track 1..9
Ctrl/Cmd* + y	Redo
Ctrl/Cmd* + Shift + z	Redo
Ctrl/Cmd* + s	Save project
Ctrl/Cmd* + Shift + s	Save project as
Ctrl/Cmd* + a	Select all clips
Arrow left/right	Clips selected: Move clips and all associated markers No clips selected: Jump to next/previous marker
Shift + Arrow left/right	Clips selected: Move clips Markers remain unchanged No clips selected: Jump to next/previous marker
Arrow up/down	Clips selected: Move clips to upper/lower editor track No clips selected: Jump to next/previous marker
Delete / Backspace	Delete selected clips and all related markers
Shift + Delete	Delete selected clips only Markers remain unchanged
Ctrl/Cmd* + Delete	Delete selected clips and related markers and close the gaps
g	Zoom +
h	Zoom -

* Ctrl on Windows PC / Cmd on Mac OS-X

Key	Function
+ / -	Change level of selected clips in steps of +/- 0.5 dB
m	Mute / unmute selected clips

Interesting facts

DDP

DDP[2] (Disc Description Protocol) is a format, that describes the content of a CD (DDP a registered trademark of DCA Inc.). It is frequently used to transfer the content of an Audio CD, e.g. from the mastering studio to the CD pressing plant. By using a DDP image you can avoid the use of CD-Rs and the CD writer as a possible source of errors. Furthermore you can transfer the final CD via the internet.

The DDP image is not a single file, but a folder. All files inside this folder belong to the DDP image and always have to be used in this combination. It is not recommended to put additional files into that folder.

In a DDP image there is always a list of track markers as well as a file containing the audio data. Additionally there can be UPC/EAN and ISRC codes as well as CD-Text information.

HOFA CD-Burn & DDP creates two additional files:

- MD5_CHECKSUM.MD5: A file including MD5 checksums that can be used to check if a file of the DDP image has been modified.
- CD Tracklist.txt: A text file including the track list of the CD.

2 DDP is a registered trademark of DCA Inc.

ISRC

The ISRC (International Standard Recording Code) is an identifier, that is unique for a track on a CD. When the track is played on the radio, this code can be used for managing license fees. Normally this code is available on all commercial CDs.

The ISRC consists of two letters followed by a 10 digit number.

The single parts are:

- Country code (2 letters), e.g. DE for Germany (Deutschland)
- Registrant code (3 digits)
- Year (2 digits)
- Designation code (5 digits)

The ISRC-Code is always provided by a registrant. It always belongs to a certain recording of a song. If a song is re-released, e.g. on a best-of compilation, it will keep its ISRC. For a remix you will need to get a new code.

For further information have a look at

http://www.ifpi.org/content/section_resources/isrc.html

UPC/EAN

The UPC (Universal Product Code) or the EAN (European Article Number) used in Europe are the numbers under the bar code that you can find on the package of any product. For automatic identification, this number can also be stored within the CD data. This code is also provided by a registrant. It is a number with 12 (UPC) or 13 (EAN) digits.

CD-Text

CD-Text is an extension to the red book standard which is supported by several CD players. When playing a CD in your computer, you should be aware, that not every software player will show CD-Text information. Often the title information is downloaded from the internet, which can be different from the information that is stored on the CD itself. **Windows Media Player[3] as well as Apple iTunes[4] do not show any CD-Text information!** But there are freely available extensions and other players that make this possible. For example:

For Windows:

- VLC Media Player

  http://www.videolan.org/vlc/
- Winamp

  http://www.winamp.com/
- Extension for Windows Media Player

  http://bmproductions.fixnum.org/moreprogs/wmpcdtext.htm

For Mac OS-X:

- Extension for iTunes

  http://dougscripts.com/itunes/scripts/ss.php?sp=cdtexttocdinfo
- drutil

  If you like it cryptic, type *drutil cdtext* in the terminal window. This will list up all CD-Text information contained on the CD in plist format.

CD-Text can store the following information for the complete album and for each track:

- Title
- Artist/Performer
- Songwriter
- Composer
- Arranger
- Additional message

For the complete album you can also specify a genre.

3 Windows Media Player is a registered trademark of Microsoft Corporation in the U.S. and other countries.
4 iTunes is a trademark of Apple Inc., registered in the U.S. and other countries.

Special characters in CD-Text

The CD-Text standard defined by Sony uses the ISO 8859-1 character encoding, which includes the most common characters used in western European languages. Unfortunately not all languages are covered completely. Especially some characters used in eastern European languages like Polish or Turkish are missing. CD-Burn & DDP only lets you enter characters that can really be used for CD-Text.

Generally you should be aware that titles stored in CD-Text will often be displayed on CD-Players or car stereos that have only very limited displays. Many of these devices will not show any special characters at all. So you could think about avoiding special characters all and replace for example a German "ä" by its equivalent "ae".

Alternativaly the CD-Text standard also allows for Japanese, which is stored using the so called Shift-JIS character encoding. This encoding does not include the European special characters, so a mixture of both is not possible. To enter CD-Text in Japanese, you need to switch Settings->CD-Text Language to Japanese.

As mentioned before, not all CD-Players that support CD-Text will be able to display Japanese.

Hidden Track

The red book standard requires a 2 seconds pregap before track 1, which normally contains silence. This pregap may also be longer and can contain audio material. A CD player always starts playback at the beginning of track 1. The pregap can only be reached when rewinding before this point. So this area can be used to hide a so called "Hidden Track".

When activating Allow “Hidden Track” in the Settings, the pregap before track 1 becomes visible. The track 1 start position can now be freely moved to create a "Hidden Track" in that pregap.

Please ask your pressing plant, if they support this feature and if your CD or DDP image can be correctly processed! Please also note that some CD players will not be able to play back this "Hidden Track". Problems that may occur frequently are:

- Rewinding is not possible
- Rewinding is possible, but the output is muted
- The very first 2 seconds can not be reached by rewinding
- When rewinding to the very beginning, playback is stopped

It is recommended to keep about 10 seconds of silence at the beginning to make it easier to rewind to the audible start of your hidden track.

LAME MP3

To be able to create MP3 files, you need to install LAME, which is freely available in the internet. Due to patent and licensing reasons, HOFA CD-Burn and DDP is not able to create MP3 files on its own. But it is possible to use LAME for MP3 encoding. Please make sure that using LAME is legal in your country.

To use LAME, the following LAME file version needs to be present in the correct folder on your system:

System	**LAME file**	**Folder**
Windows 32 bit	**lame_enc.dll** (**32 bit** version)	WINDOWS\System32\
Windows 64 bit	**lame_enc.dll** (**64 bit** version)	WINDOWS\System32\
32 bit version of CD-Burn & DDP on Windows 64 bit system	**lame_enc.dll** (**32 bit** version)	WINDOWS\SysWOW64\
Mac OS-X 32 bit	**libmp3lame.dylib** (**32 bit** version or combined 32+64 bit Version)	/usr/lib/
Mac OS-X 64 bit	**libmp3lame.dylib** (**64 bit** version or combined 32+64 bit Version)	/usr/lib/

If this is installed, saving tracks as MP3 files is done the same way as it is done for other audio formats.

On OS X the folder /usr/lib is hidden by default. It can be shown using Go->Go to Folder from the Finder menu.

If you face any problems, please contact our support plugins@hofa.de.

Dither

In digital audio processing there is always a difference to the original analog signal as each sample has to be rounded to a finite precision. In case of 16 bit used on a CD-A this is a precision of 65536 steps.

During recording and mixing higher rates of 24 or 32 bits are frequently used to minimize the rounding error, that occurs with each editing step. Anyway the final result must be converted to 16 bit for the CD-A premaster. The rounding errors of this step can cause audible distortions in the signal especially in quiet parts. Dithering is used to reduce this problem. Before rounding to 16 bit, a minimal noise is added to the signal. This will modify the statistic distribution

of the rounding error in a way, that it sounds more as noise than distortion. This noise also is a disturbance, but it is perceived as less uncomfortable.

A possibility to further reduce the influence of the added noise is the so called noise shaping. The noise signal is filtered to put most of its spectrum to frequencies, that are less perceived by the human ear.

Generally for the use of dithering it is important to do it only one time at the very end of the signal chain. Any editing step after dithering will negate the effect and another dithering will increase the added noise level.

The standalone version of HOFA CD-Burn & DDP will provide dithering, which is added at the very end while burning the CD or exporting the DDP image. In the menu you find the following settings for Dither:

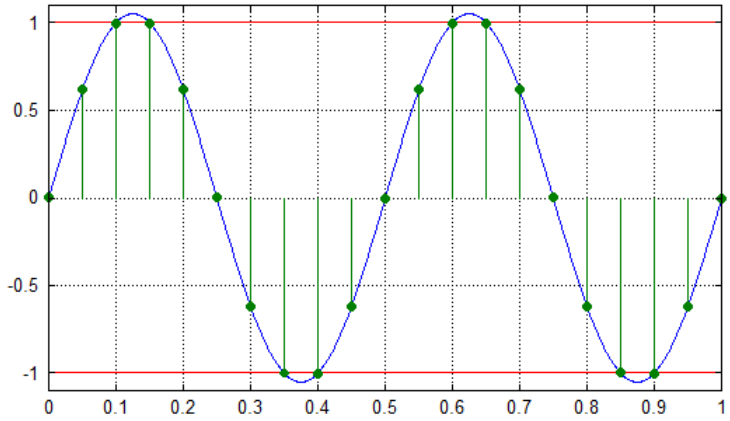
- Dither enabled: Switches dithering on and off.
- Noiseshaping enabled: Switches on and off the additional noise shaping.
- No dither during silence: If this is activated, the dither will not be used where the signal is absolute silence.
- Dither level: The level of dither noise is adjustable in 3 steps.

When your audio material is already in 16 bits format, dithering will not be used.

The plugin version does not provide dithering. It uses the signal exported from the DAW, so it is the job of the DAW to perform dithering.

Intersample peaks

In the digital domain signals are represented by samples taken at discrete time intervals. This can lead to a signal that exceeds the digitally available magnitude range when converted to an analog signal while the digital signal still lies inside the range. The following figure demonstrates this:



While the (green) digital signal lies in between ±1 the (blue) analog signal exceeds this range. This wouldn't be a problem if the analog signal had enough headroom. Unfortunately, most DA converters run on low supply voltages and therefore lack the needed headroom. Therefore a signal might clip even if a sample peak meter doesn't show this.

Intersample peak meters also measure between samples and thus show clippings that only might occur in the analog domain.

EBU R 128

EBU R 128 is an EBU (European Broadcasting Union) standard defining guide values for loudness in broadcasting. The origin of this standard lies in the increasing loudness in broadcasting and the dynamic variations resulting from that (e.g. adds are often louder than regular program). To counteract this loudness normalization was introduced, aside with a referenced target level.

With EBU R 128 an open standard for loudness measurement was created. Also new units LU and LUFS (Loudness Unit / Full Scale) were introduced. One LU is basically the same as one dB but describes a loudness measured according to EBU R 128. While LU is a relative level LUFS is an absolute level, the relationship being 0 LU = -23 LUFS.

To evaluate a loudness three different ballistics are introduced. These are the momentary loudness, the short-term loudness and the integral loudness. The first and second ballistic show the actual loudness with the second reacting slower. The last one measures the loudness over a longer time period, resulting in a loudness for that whole time. This measurement is gated so silent parts don't influence the measurement. Also this loudness is used for a loudness normalization according to EBU R 128.

To judge the program dynamic EBU R 128 defines the loudness range (LRA). The loudness range quantifies the variations of loudness in time, e.g. the

proportion between louder parts and quieter parts.

EBU R 128 claims a program loudness of -23 LUFS (= 0 LU). On the other hand the loudness of most music is about -10 LUFS, ranging up to –5 LUFS. So one might ask why an EBU meter should be used for music.

The answer is simple: While a loudness reference of -23 LUFS isn't very suitable for music, having a standardized tool for loudness measurement certainly is. Due to the open standard loudness is comparable between different measurement tools.

The loudness range can help judging the loudness across several music titles (premastering) or on long tracks. Especially on premastered music the value might not be very meaningful.

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